Recommendations of December Review of Open Midplane Dipole Program

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Port Jefferson

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Recommendations ⇒ BNL plans

- Continue work on open midplane dipole for "dipole first" option for LHC IR upgrade.
- Develop *integrated* design:
  - AP: ∫Bdl, good field aperture, D1A/B, D2, absorbers
  - Operability: margins against quenching (T, B)
  - Mechanical: detailed stress, strain – warm, cold, powered – coils, support structure
  - Thermal: radiation heating distribution, removal (including LHC cryo capacity)
  - Radiation: above + residual dose, material lifetime

Recommendations ⇒ BNL plans

- Model program:
  - Sequence: Reassemble existing magnet, build proof of principle (POP), build model
  - Use POP to test critical elements of design
  - Feed test results into model design
- Develop resource-loaded schedule
  - 3 (…4!) years to a tested model (FY06-09)
  - Milestones linked to test results
  - Get help from other labs

Overview of BNL plans

- Rewire planned 12T common coil magnet as open midplane dipole. (Great idea!)
  - Quick test of limits of coil vertical deflection
- Detailed analysis + small-scale tests $\Rightarrow$ D1 design
- Develop POP with central features of D1:
  - e.g.: vertical deflection, preload, radiation/heat tolerance, aperture, …
- Develop D1 …

Talks on BNL Magnet Program: "Open Midplane Dipole: D1, POP, and Reconfigured 12T Common Coil"

- R. Gupta – Magnetic Design, Forces
- J. Schmalzle – Mechanical Design
- M. Anerella – Cost and Schedule

- Also: M. Anerella – Long coil W&R R&D